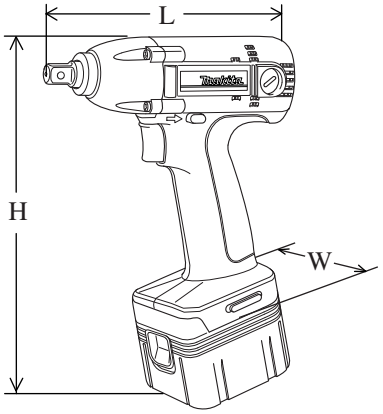
Models No. ► BTW121

Description ► Cordless Impact Wrench

CONCEPTION AND MAIN APPLICATIONS

The above model is the advanced version of the existing Model BTW120, and With the Automatic Blow-Stop System featuring Model BTW121 you are free from the over-tightening.



Dimensions : mm (")	
Length (L)	176 (6-15/16)
Height (H)	251 (9-7/8)
Width (W)	75 (2-15/16)

► Specification

Voltage (V)		12
No load speed (min-1=rpm)		0 - 2,300
Impact per minute (min-1=bpm)		0 - 3,000
Driving shank : mm (")		12.7 (1/2) square
Capacities	**Standard bolt**	M8 - M14 (5/16 - 9/16)
	High Tensile bolt	M6 - M12 (1/4 - 1/2)
Max. fastening torque		120N.m (1,220Kgf.cm, 88ft.lbs
Electric brake		Yes
Reverse switch		Yes
Net weight: kg (lbs)		1.5 (3.3) including battery BH1220

► Standard equipment

* Socket 19 - 38 ..... 1 pc.
* Pin 4 ..... 1 pc.
* O ring 24 ..... 1 pc. (Except North American countries)

< Note > The standard equipment for the tool shown may differ from country to country.

► Optional accessories

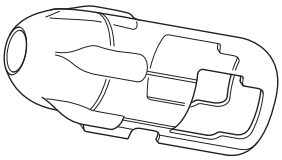
* Various sockets
* Protector
* Battery BH1220
* Battery BH1233
* Charger DC14SA

Automatic Blow-Stop System for prevention of over tightening

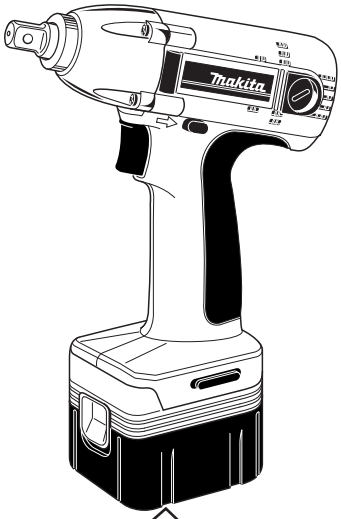
The machine is to be stopped automatically in accordance with the pre-set blowing time.

<Note>
The required fastening torque (N.m) can not be set with bpm. pre-selection system.

Rubber protector (optional accessory) can be installed for protecting work piece from the accidental scratch.



(Rubber protector)

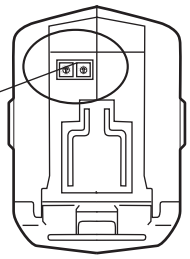


Automatic blow-stop system

The machine is stopped automatically in accordance with the pre-set blowing time.

< Note >
The required fastening torque (N.m) can not be set with this system.

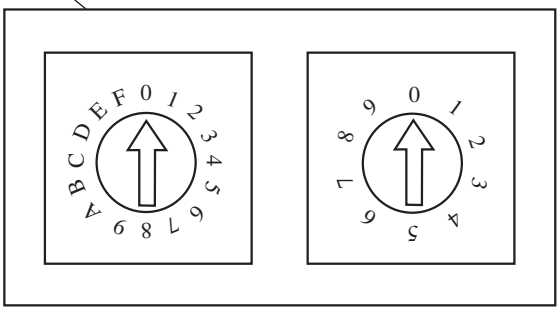
BPM. pre-setting dial



Bottom view of grip end
(View from terminal side)

How to pre-set number of blow.

BPM. pre-setting dial is located in the grip end as illustrated above,
and it can be found easily, when the battery is taken off.
The number of blows can be set by turning the dial (arrow) with small flat head screwdriver.
The figures mean as illustrated in Fig.A - Fig.C.
See next page.

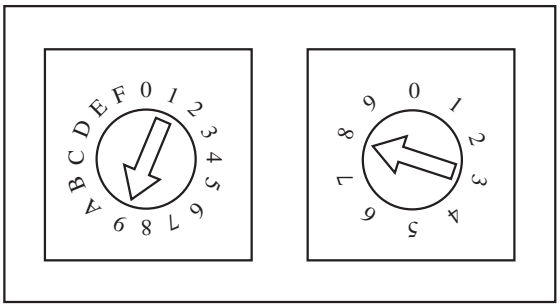


The second digit
(The alphabet means working mode for special employment.)

The first digit

Features and benefits

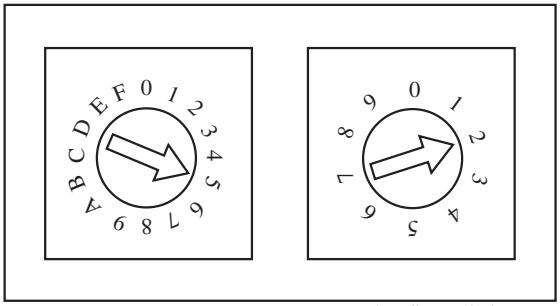
If you want the blowing time for 196 bpm., align the pre-setting dial of the second digit with 9 and the same of the first digit with 8 as illustrated in Fig.A. Namely, the time for 98 x 2 = 196 bpm.



The second digit The first digit

Fig.A

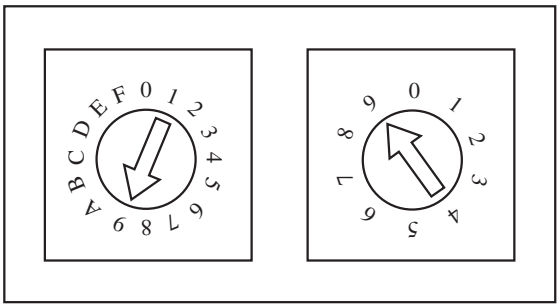
If you want the blowing time for 104 bpm., align the pre-setting dial of the second digit with 5 and the same of the first digit with 2 as illustrated in Fig.B. Namely, the blowing time for 52 x 2 = 104 bpm.



The second digit The first digit

Fig.B

If you want the blowing time for more than 200 BPM., align the both pre-setting dials with 9 as illustrated in Fig. C. In this case, Mod.BTW151 is used as an normal cordless impact wrench with 0 - 3,000 bpm.



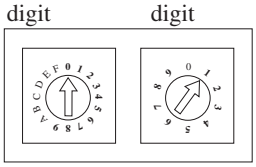
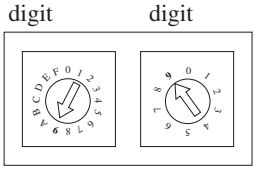
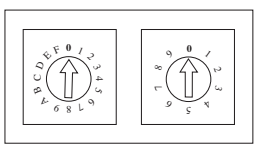
The second digit The first digit

Fig.C

Indications and functions

Fastening of bolts

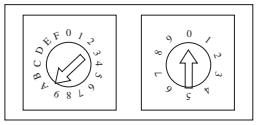
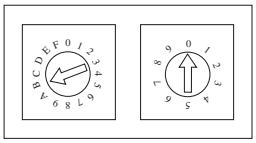
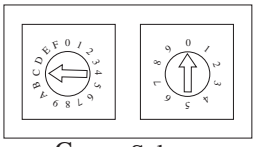
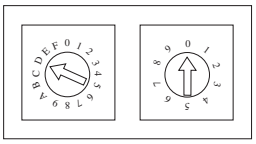
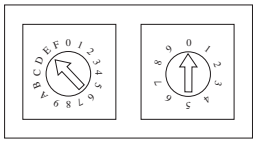
the time for pre-set bpme. comes

Dial pre-selection	Mode of reverse switch		Purpose
	Clockwise rotation	Anti-clockwise rotation	
The second digit / The first digit  0 - 9 1 - 8	The machine stops automatically, when its sensor perceives the time for pre-set bpm which is equivalent to double of the figures selected with dial.	The machine starts or stops with operation of the trigger switch.	The fastening work of bolts for which the bpm. control is required.
The second digit / The first digit  9 9	The machine starts or stops with operation of the trigger switch.		The fastening work of bolts for which more than 200 bpm. is required, or bpm. control is not required.
The second digit / The first digit  0 0	The machine does not start in spite of operation of switch trigger.	The machine starts or stops with operation of the trigger switch.	———

Features and benefits

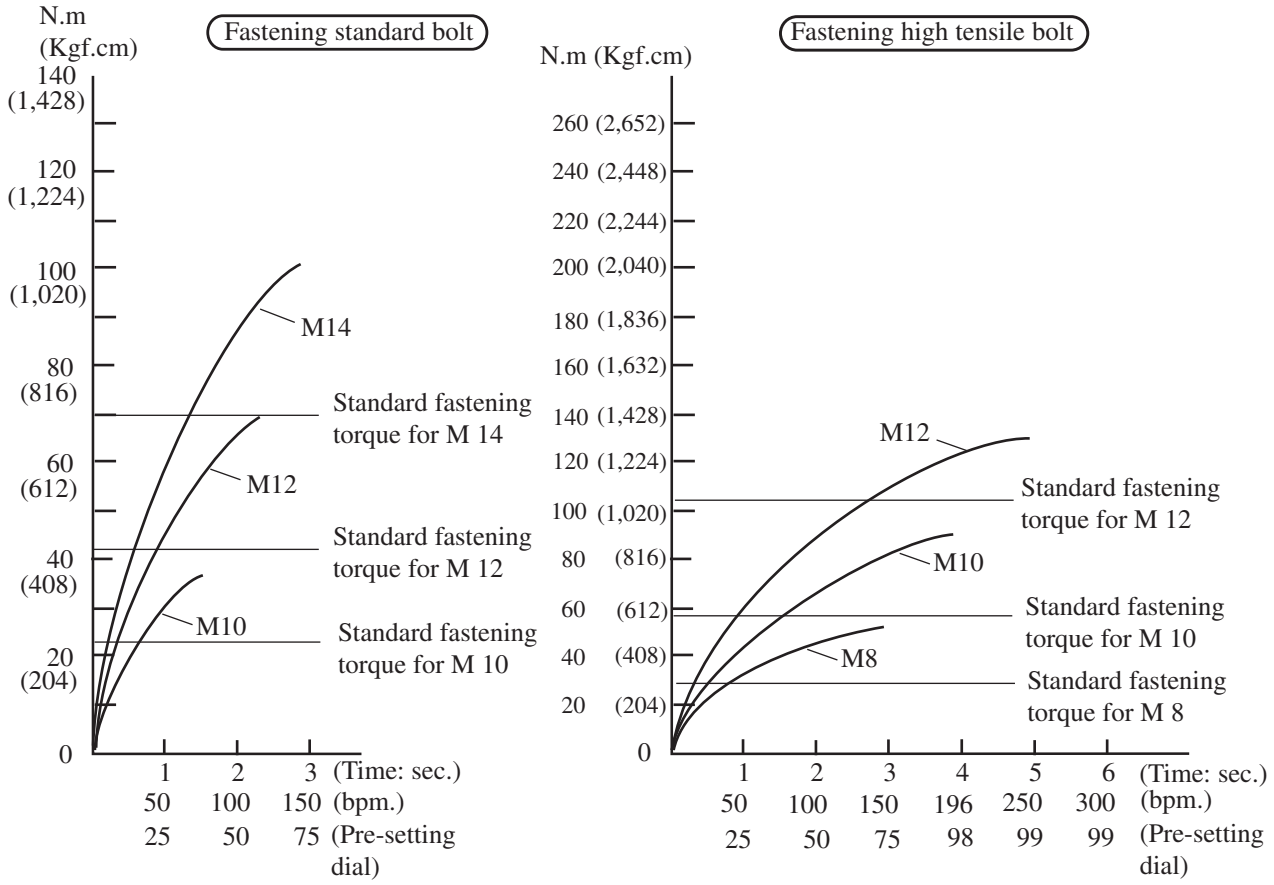
Indications and functions

Special purpose

Pre-setting dial	Mode of reverse switch		Purpose
	Clockwise rotation	Anti-clockwise rotation	
The second digit / The first digit  A Select any of 0 - 9	If the dial of second digit is pre-set on "A", the machine does not start in spite of pulling trigger switch.		———
The second digit / The first digit  B Select any of 0 - 9	The machine stops after the first blow is perceived, depending on the pre-set figures of the first digit. For instance, 0 : Stop at one 1 : Stop 0.1 sec. later 2 : Stop 0.2 sec. later 9 : Stop 0.9 sec. later	The machine starts or stops with operation of the trigger switch.	Preliminary fastening of bolts
The second digit / The first digit  C Select any of 0 - 9	The machine starts or stops with operation of the trigger switch.	Depending on the pre-set figures of the first digit, the machine stops when its blow is not perceived. For instance, 0 : Stop at one 1 : Stop 0.1 sec. later 2 : Stop 0.2 sec. later 9 : Stop 0.9 sec. later	Loosening of bolts
The second digit / The first digit  D Select any of 0 - 9	If the dial of second digit is set on "D", the machine does not start in spite of pulling trigger switch.		———
The second digit / The first digit  E Select any of 0 - 9	The machine does not start in spite of pulling switch trigger, but buzzers 2 sec. after pulling switch trigger, depending on the preset figure of the first digit. For instance, 0 : one alarm of buzzer 1 : two alarms of buzzer 2 : three alarms of buzzer 9 : ten alarms of buzzer	The machine stops depending on the pre-set figure of the first digit, after the blow is perceived. For instance, 0 : stop with one blow 1 : stop with two blows 2 : stop with three blows 9 : stop with ten blows	Checking the functions mentioned below. For instance * BPM. pre-setting dial * Stop of motor * Buzzer

Features and benefits

The relation between bpm. and fastening torque



Comparison of products

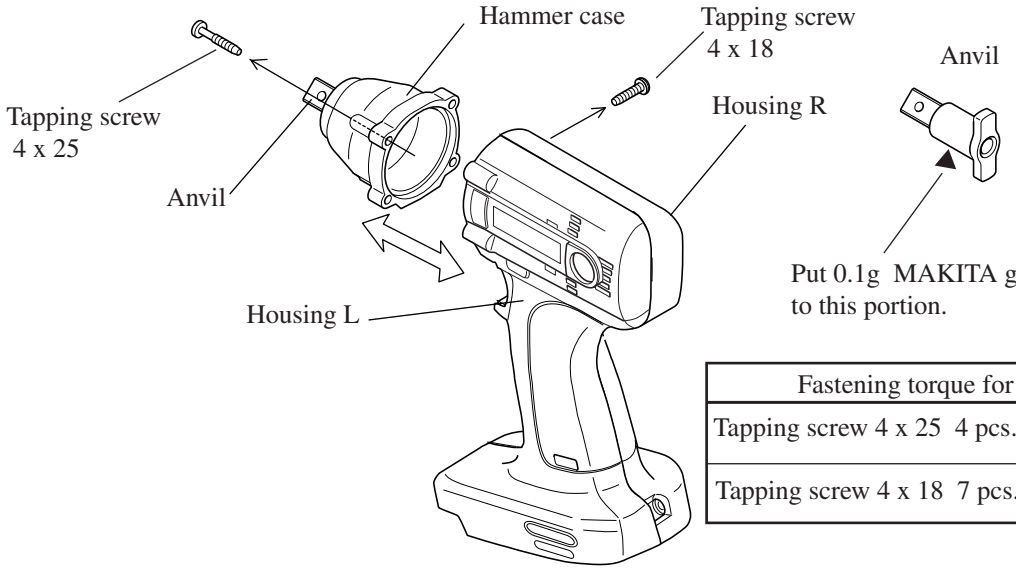
Specifications \ Model		Makita			
		BTW121		BTW120	
Battery	Cell	Ni-MH		Ni-MH	
	Type	BH1220	BH1233	BH1220	BH1233
	Voltage (V)	12		12	
	Current capacity (Ah)	2.0	3.3	2.0	3.3
	Energy Capacity (Wh)	24.0	39.6	24.0	39.6
No load speed (min-1=rpm)		0 - 2,300		0 - 2,300	
Impacts per minute (min-1=ipm)		0 - 3,000		0 - 3,000	
Fastening torque:N.m (kgf.cm)		120 (1,530)		120 (1,530)	
Dimensions	Length : mm (")	176 (6-15/16)		176 (6-15/16)	
	Width : mm (")	75 (2-15/16)		75 (2-15/16)	
	Height : mm (")	251 (9-7/8)	276 (10-7/8)	253 (10)	276 (10-7/8)
Net weight: kg (lbs)		1.9 (4.2) (including battery)	2.2 (4.9)	1.9 (4.2) (including battery)	2.2 (4.9)

< 1 > Disassembling housing R and L

Remove hammer case from housing R and L as illustrated in Fig. 1. So, housing R can be separated from housing L.

Anvil can be disassembled from hammer case.

< Note > When assembling anvil to hammer case, put 0.1g MAKITA grease N No.1 to the cylindric part of anvil.



Fastening torque for assembling	
Tapping screw 4 x 25 4 pcs.	1.76 - 2.16N.m (18 - 22Kgf.cm)
Tapping screw 4 x 18 7 pcs.	1.27 - 1.76N.m (10 - 13Kgf.cm)

Fig. 1

< 2 > Disassembling hammer

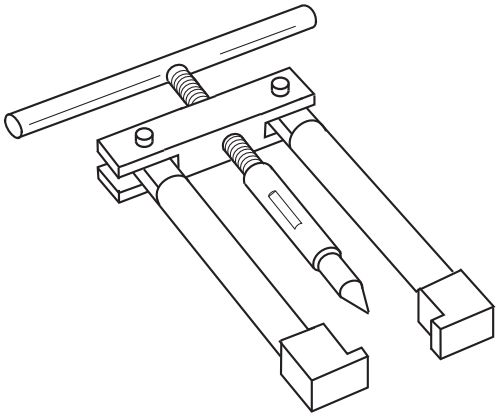
(1) Press down hammer with 1R045: Large gear extractor by turning the handle.

(2)Adjust the opening for steel ball inserting to the cam groove top of spindle.

(3)Take off 2 pcs. of steel balls 5.6 from spindle.

< Note > 25 steel balls 3.5 are installed in hammer. Check the quantity when assembling.

1R045 Large gear extractor



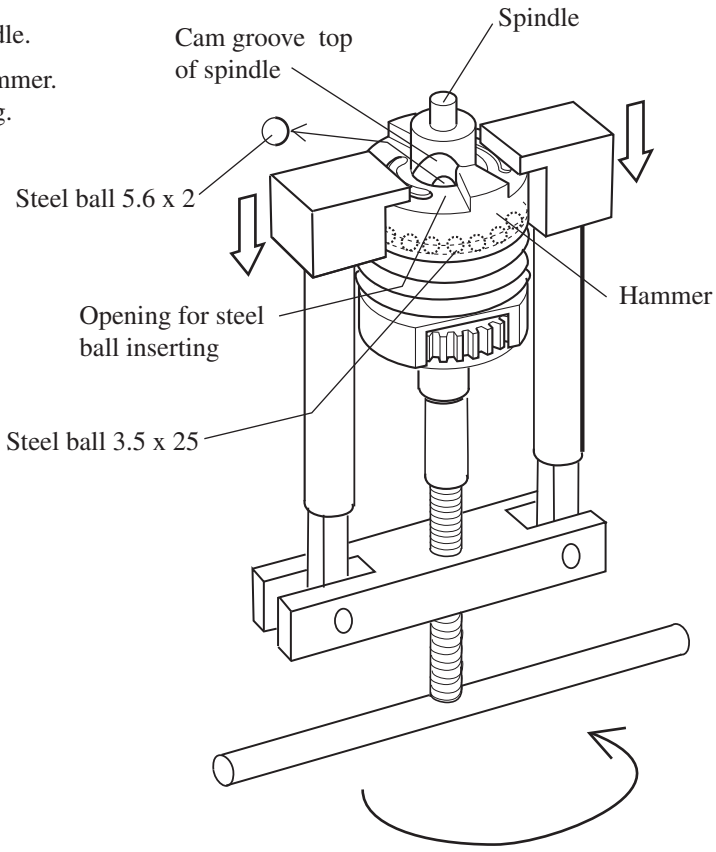


Fig. 2

(4) Apply grease to the position No. 1, 2, 3 and 4 as listed below, when assembling.

	MAKITA grease N No.2
(1)	0.5g
(2)	0.5g
(3)	0.5g
(4)	2.0g

< Note > Make sure that 25 pcs.of steel balls 3.5 are assembled in hammer, when assembling.

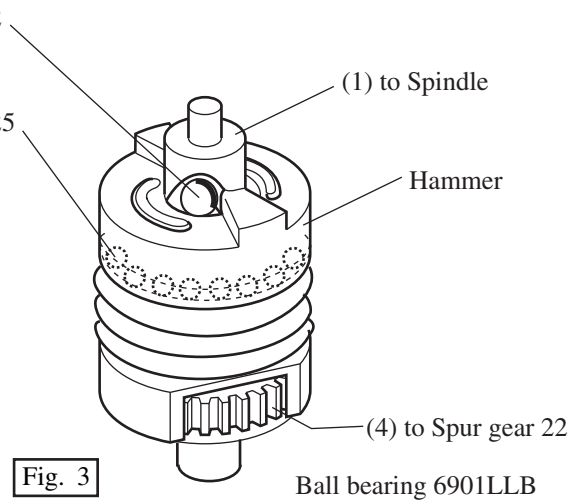
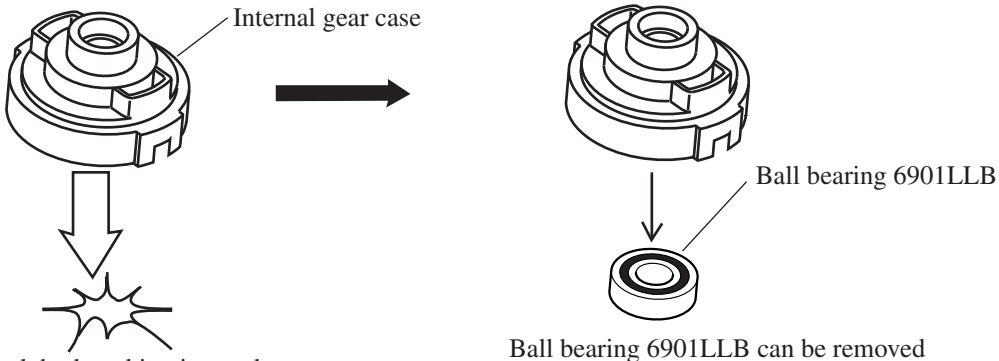


Fig. 3

< 4 > Removing ball bearing 6901LLB



Give a shock by knocking internal gear case on the table.

Ball bearing 6901LLB can be removed from internal gear case by the shock.

Fig. 4

< 5 > Fastening tapping screws

When hammer case is assembled to housing, tapping screws 4 x 25 have to be fastened diagonally as illustrated in Fig. 5.

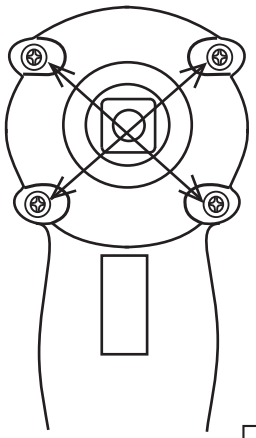
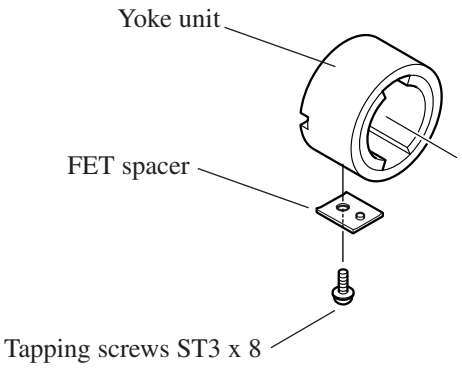
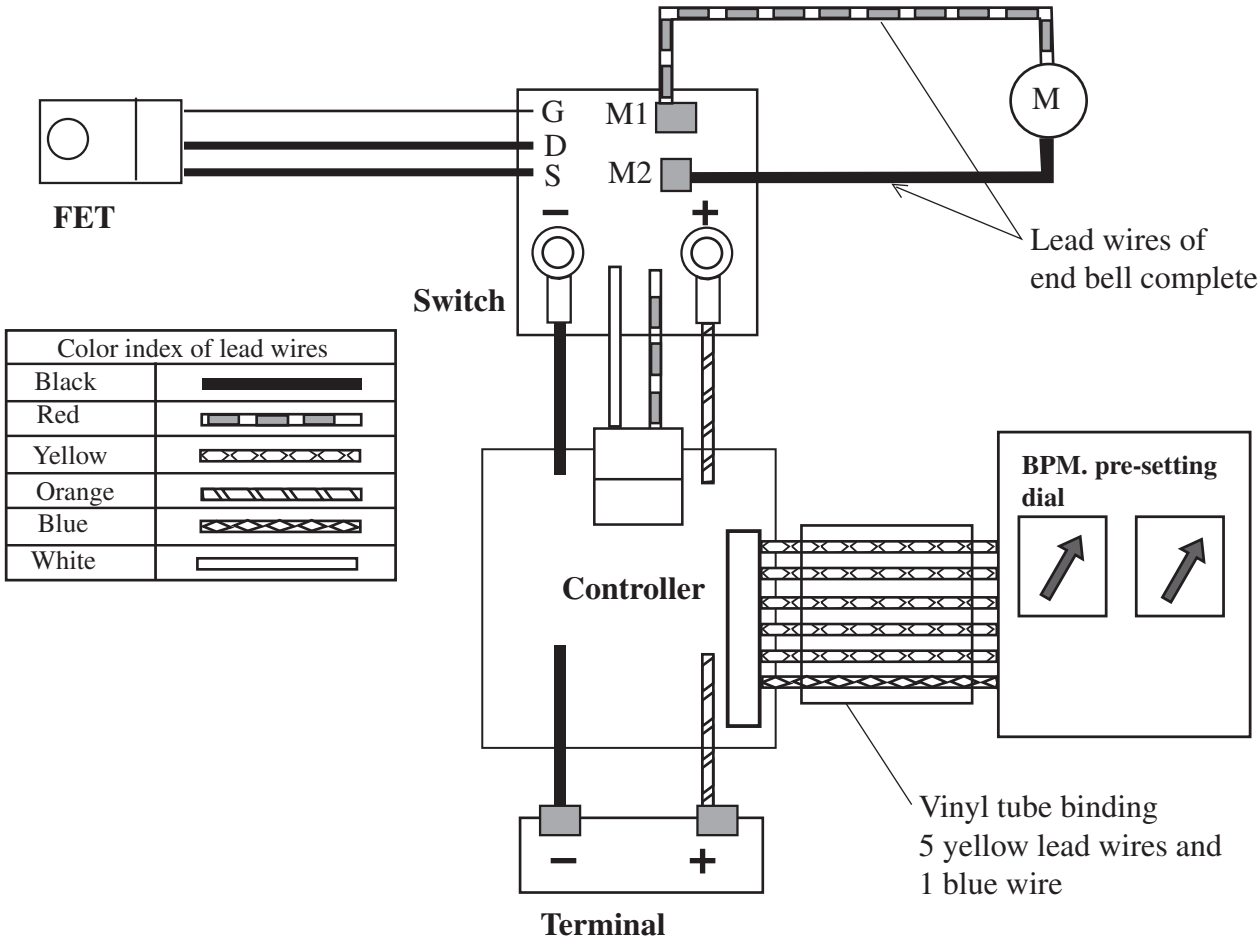


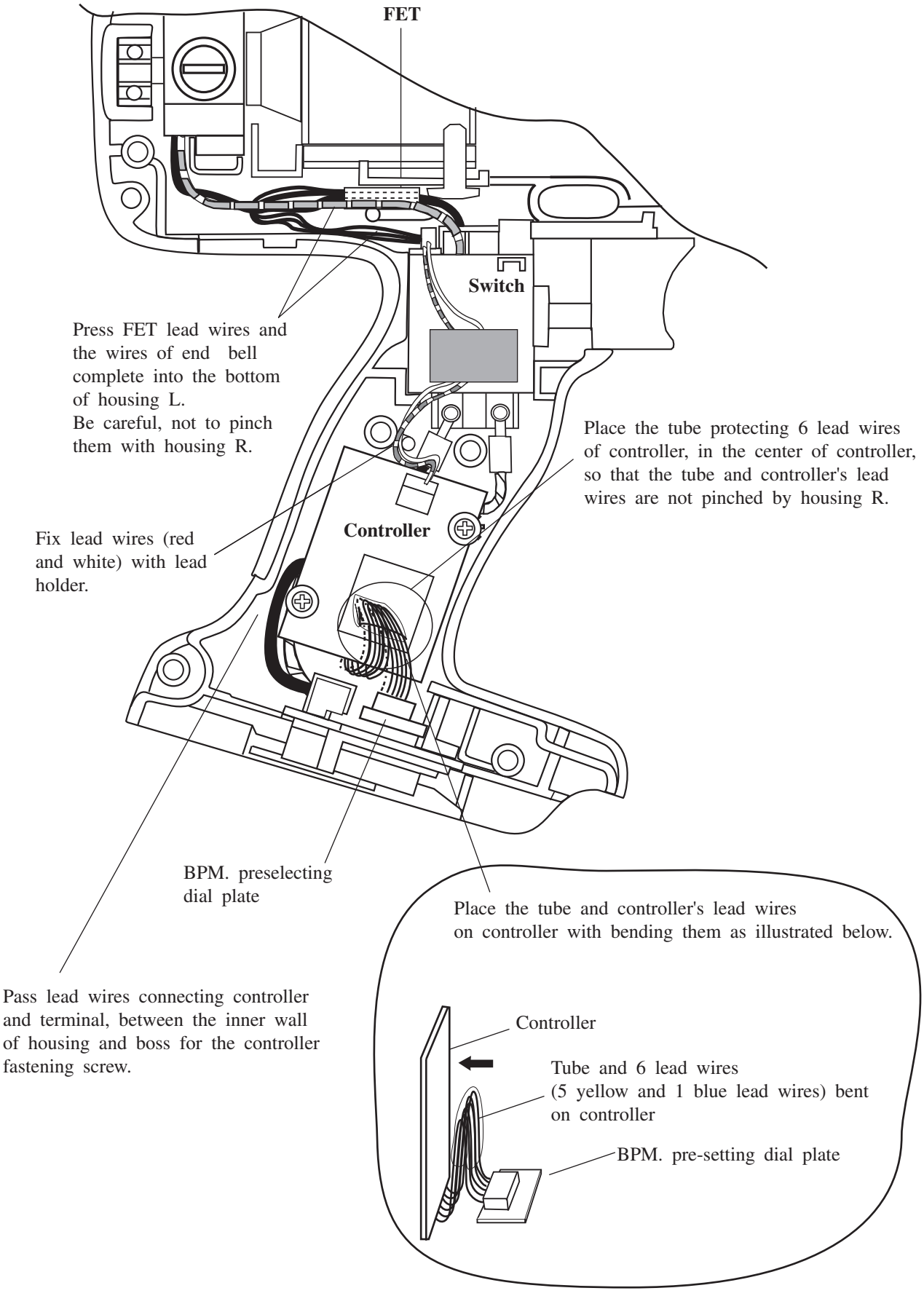
Fig.5

When FET spacer is assembled to yoke unit, tapping screw ST3 x 8 has to be fastened with the fastening torque 1.1 - 1.5N.m (11 - 15Kgf.cm). See Fig. 5A.



► Circuit diagram




FET
Switch
Press FET lead wires and the wires of end bell complete into the bottom of housing L.
Be careful, not to pinch them with housing R.
Place the tube protecting 6 lead wires of controller, in the center of controller, so that the tube and controller's lead wires are not pinched by housing R.
Controller
Fix lead wires (red and white) with lead holder.
BPM. preselecting dial plate
Place the tube and controller's lead wires on controller with bending them as illustrated below.
Pass lead wires connecting controller and terminal, between the inner wall of housing and boss for the controller fastening screw.
Controller
Tube and 6 lead wires (5 yellow and 1 blue lead wires) bent on controller
BPM. pre-setting dial plate